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## Original Articles.

### ADDRESS ON HYGIENE.

DELIVERED BY PROF. SAMUEL G. DIXON, M.D.  
[At the meeting of the State Medical Society, Williamsport, Pa.]

IT certainly gives me much pleasure to be with you on this occasion. I should, however, have enjoyed the visit more had I been present simply as a listener and not as a speaker.

A few days ago when I came to reflect upon the subject selected by our able president as the one upon which I was to address you, I was not a little perplexed. For me to presume to teach a learned body of medical doctors, such as have here congregated, regarding the most important branch of medical education, would be unpardonable. I can, therefore, only hope by chance to refresh your memories upon a few points in sanitary science. As a teacher of medical students I have seen fit to divide the subject into *Personal*, *General* and *Public Hygiene*.

Including under *Personal Hygiene*:—Inheritance; hygiene of various periods of life; prevention of mental, moral and

emotional diseases; prevention of sexual diseases; hygiene of clothing; hygiene of occupation, etc.

Under *General Hygiene*.—Hygiene of foods: Practical dietetics; food adulterations, food decompositions; accessory foods, etc., stimulants and narcotics, (intemperance).

Hygiene of water: Water supply; potable water; balneology.

Hygiene of dwellings: Air; lighting; heating and ventilation; plumbing; drainage and sewerage.

Location and soil: Ground air; ground water; soil pollution.

Climatology; medical meteorology; animal parasites, (examination of meats, etc.); vegetable parasites, (bacteria).

*Public Hygiene*.—Infectious diseases; school hygiene; quarantine—means of combating disease; disinfection; hygiene of hospitals, prisons, etc.; vital statistics; legislation of public measures; vaccination, etc.; disposal of the dead.

This scheme may appear too comprehensive for a student of medicine under our present short graded courses of three years, yet, as it is not in the least too general, I would be pleased to see it introduced into the curriculum of every medical

teaching institution of our Keystone State, and at the same time to have its standard well protected by a learned State Board of Medical Examiners. However much I may advocate this standard in our medical schools, I can assure you that my address to you will be exceedingly short. I will not presume to air my own erudition in a comprehensive lecture on sanitary medicine, as I feel sure it would be at the expense of others who are here, I have no doubt, to teach us that which has not heretofore been known to the medical profession. To avoid inflicting tediousness upon you, my fellow members of the State Medical Society of Pennsylvania, and for brevity's sake, I will merely attempt to refresh your memories upon a sub-division of my comprehensive scheme of preventive medicine, which will be *Air*. In considering the importance of this element to sanitary science we must recognize that man's surroundings are and ever will be impregnated with minute life which will, when brought in relationship with a favorable nidus, at least direct either functional or comparatively harmless pathological conditions into maladies which nature may neither exist under or overcome. Again it would appear, so far as we can determine from artificial experimentation, that this micro-organic life can *per se* when introduced into healthy tissues disturb the normal affinities of the animal economy. This being admitted, we must accept the situation and prepare ourselves for war with this minute life by first building up healthy, vigorous tissues, for, the instant we permit them to drift from a normal condition they at once offer a nidus where pathogenic organisms may feed, grow, reproduce and form toxic substances which will so disturb the higher animal organic life as to cause dissolution. To grow tissues sufficiently vigorous to destroy these germs of disease as they enter the body under ordinary circumstances, we will be compelled to call to our assistance each and every hygienic measure known to man. We must enforce proper mental and moral training, suitable clothing, occupation, diet, bathing, sanitary dwellings, urban parks, proper food, vaccination, and above any other one element, *pure air*. However, as I have already stated that I do not intend taking

advantage of the privilege granted me by this society, I must and will confine myself to the factor that above all others takes a high position in governing health and disease, and at the same time the one most frequently lost sight of by both layman and physician. The high place I give air as a sanitary factor may be severely criticised, for I do not know of any means by which we can measure the influence of isolated factors in favor of and antagonistic to the health of animal life. I will, however, for my purpose on this occasion, venture to place air on a high plane, as our whole vital process is dependent upon this element. To appreciate the importance of this, the chief factor of organic existence in relation to both health and disease, we must ever keep before us, in at least a superficial way, the physiological processes dependent upon this mechanical mixture. Animal life demands air through the organs of respiration and transpiration, from the very moment it obtains an independent existence, until the last act of life is performed. Parkes very truly states that starvation is a matter of days without solids, hours without liquids, but of minutes without air. We must ever bear in mind, that the air a strong man takes into his lungs supplies oxygen to 443,520 ounces of blood every twenty-four hours, providing the mechanical mixture must be made up of 20.96 per cent. of oxygen, 79 per cent. nitrogen and .04 per cent. carbon dioxide. To obtain a full supply of oxygen for the tissues through the red blood corpuscles, *all* the physiological functions of respiration must be in health, for this reason we cannot entirely overcome inherited inconsistencies. If there is any reduction in the required amount of this important constituent of the atmosphere, just to that degree of loss do the animal functions of the body become impaired and the moment there is an entire cessation of the supply of oxygen, life immediately goes out. It would seem that the nervous system first feels its loss, then the heart, the brain and digestive system, etc., all become sluggish in their respective functions, the results of which are reflected upon every cell and fluid in the animal body. Physiological combus-

tion is interfered with, and consequently the required chemical changes necessary for health do not take place. The blood is loaded with debris and is thereby rendered unable to take up the waste of the tissues, but leaves it as foreign matter to undergo chemical changes and form poisons.

Consumption of the lungs is always to be found in great excess, both in man and the lower animals, who live in such environments as compel the breathing of devitalized air, producing sluggishness of physiological action. It is under this condition that the digestive secretions are impaired, and the general physiological combustion reduced so that the body becomes a habitat for germs called pathological micro-organisms, and they, with their respective methods of digestive processes, effect a breaking up of the already weakened affinity of the molecules forming the cells and tissues, and in some way or other, these organic chemical substances are toxic to animal life. The powerful effect of repeated infinitesimal quantities of these poisons, which are often albumoses, is beyond our present knowledge, yet, we have good reason to believe that they cause many chronic changes that insidiously creep upon us, while large doses of them cause death almost immediately. For instance, the subcutaneous infection of blood taken from an animal with uræmia produces uræmia in the recipient, or the prevention of their elimination through the excretory organs will also produce the same result. Gautier, and many others, have thoroughly demonstrated that animal tissues in process of putrefaction and decomposition, invariably elaborate certain alkaloids of very powerful toxic properties. To-day we know that these toxic albumens are also formed during the life of the animal tissues, and are called leucomaines; any excess of the production of such substances in the animal economy, even in most minute quantities would certainly be very dangerous to health, were it not for the eliminating organs. This is demonstrated by an instance just cited in which the kidneys were ligated, and the animal thus affected soon died with symptoms indicating a malady that has received the misnomer of uræmia. The production of

the waste is in reality a feature of life. Dr. A. M. Brown very properly said, "Life is a contingent phenomenon consisting of partial births and deaths." "In the midst of life we are in death," for scientifically speaking, it must be admitted that the living body always bears with it the components of the dead one. Life only goes on as long as the organic and inorganic work together, and to carry on its functions consistently with health the normal quantity of oxygen must be furnished the blood in order to form *normal* waste. The dissimulation that results from over-loading the system with debris because of the blood being deficient in its carrying powers, often results in the production of leucomaines. Impure air often contains these toxic alkaloids that I have said are produced outside of the living tissues, and can be taken into the body through respiration.

The decaying organic matter in the air of a Russian hut in the spring time, after it has been occupied all winter, will, with many people, bring on nervousness, indigestion and diarrhoea, and sometimes typhus fever, either directly or through the agency of minute life. I am convinced from my investigations that no one living in a normal atmosphere, performing that sort of physical exercise calculated to pump a normal quantity of air into the lungs, would likely become a victim to typhus fever. Let it be a reproductive poison or not, it is, I have no doubt, caused by impure air, which not only supplies toxics formed outside the body, but also permits them to form in the tissues. If our people had a bountiful supply of pure air furnished to the lungs, we would all, even we bacteriologists, attach less importance to the disease-effecting and disease-producing micro-organisms. On the principle of resistance, man must protect himself against the deadly work of micro-organisms. We cannot directly exterminate them outside the animal body, or as yet see our way clear to overcome their pathogenic characters. If they once gain entrance and establish themselves in their human abodes, it is a most difficult task to successfully battle against their action upon the tissues without overcoming the animal economy. For this reason, there-



fore, we must, as I have said, supply the body with its required quantity of oxygen to keep up the highest degree of vitality in every member. Otherwise the secreting and excreting organs will cease to do their full quota of work and the tissues will not continue to undergo that constant regeneration that is necessary for health, otherwise the blood can neither carry nourishment to the respective organs nor in turn convey the debris to the eliminating viscera. The importance of pure air for the health of man must be apparent to us all from the fact that the very environment in which the animal kingdom has been evolved is most constant in its supply of this mechanical mixture of oxygen, nitrogen, and carbon dioxide, as they are the constituents of the very element that has permitted the present development of man and the lower animals. Without it we are *a priori* infected by the formation of leucomaines which would otherwise be prevented by normal physiological combustion. I believe we often find an example of the want of a normal elimination of debris in children living in cities. A child, particularly one with insufficient chest expansion, that has been taking considerable physical exercise in a badly ventilated room, will frequently suffer toward evening with what we call growing pains, and at times with a slight rise in temperature, while the *same child*, when submitted to like exercise in country air, where it can obtain sufficient oxygen, will not be subject to the same painful affection. In such cases it is quite probable that the trouble is brought about by the inability of the blood to furnish enough oxygen to the tissues and to carry away the debris, and if this condition is carried on continuously for some weeks, we will have a continued fever due, in all probability, to the formation of leucomaines, or to catarrh of the digestive tract. The physiological process of life not only demands the formation of natural tissues, but also of *normal waste* and the moment the eliminating organs are called upon to battle with foreign matter, their scope of power is limited and the tissues irritated, as for instance, when the kidneys are loaded with uric acid crystals, the results of which we are perfectly familiar with. This condition

can be overcome if we have both healthy lungs and nervous system, the latter to transmit normal impulses to the respiratory muscles and thus furnish the blood with pure air to bring about natural physiological combustion. You may limit your patient's diet to non-nitrogenous food stuff, you may wash him out with the free administration of water and you may drug him with any or all the remedies known to the medical profession that have any relation to a gouty diathesis, and find your treatment of little or no avail, unless you have the patient exercise in fresh air. Perfect oxydation of the food is the prevention and cure for gout. The changes effected by the artifice of man in the normal uniformity of the composition of the atmosphere is too significant a fact for us to lose sight of when considering a means for the preservation of health and the cure of disease. Pure air breaks up organic matter and renders it both harmless and also useful to each and every form of life that has been evolved in its midst. Without its chemical action upon inanimate matter, heat and energy would not be produced and the world would be without animate things. It creates and supports life; therefore, the moment we overload it with impurities, that moment we interfere with its power to maintain health. Yet owing to man's present want of appreciation of the necessity of maintaining the purity of this mechanical mixture for health, I have never found in his habitations an approach to purity in this great life-supporting element. It is mostly deficient in oxygen, which is replaced by carbon dioxide and carbon monoxide, toxic, non-toxic organic, inorganic matter and frequently by pathogenic micro-organisms.

The carbon dioxide is, of course, the least harmful; it being within itself only a negative poison. We do not now believe that the 123 persons that died out of the 146 confined for one night in the Black Hole of Calcutta, nor that the 70 passengers who died out of the 150 that were fastened in the cabin of the steamer Londonderry with the hatches battened down during a rough night in the year 1848, were killed by asphyxiation from carbon dioxide, but that they perished from the animal alkaloids formed out of



the organic debris exhaled by the lungs and skin into an atmosphere deficient in that great purifier—oxygen. Organic matter is also taken into our buildings by soil air, our boots, and in large towns and cities by the very air we are compelled to circulate through our dwellings as the nearest substitute obtainable for nature's atmosphere. The air of Philadelphia this month is so laden with filthy organic matter raised from the dirty alleys, (I say alleys, because they are not worthy the title of streets), that when the sun's rays strike them as suspended in the atmosphere of a room slightly agitated, you instinctively hold your breath. Not only is this air loaded with filth that undergoes a chemical change and forms compound poison when retained in rooms deprived of sunlight, and deficient in oxygen, but we have also sub-soil air that circulates through earth foul with the sewage that leaks through the open walls of our conduits. The soil through which this air passes is so polluted with sewage that when brought to the surface you can smell it, with a modern wind some 1000 feet away; this is the condition of the air that circulates through our cellar walls in Philadelphia, the average stone of which they are built containing nearly 50 per cent of air, which is constantly interchanging with the surrounding atmosphere. Again, a large proportion of the floors of the hot air chambers of our heating furnaces are built of porous earth. What is the effect of this condition of affairs? Why, the air in the hot air chamber is lighter than the filthy sub-soil and out door air, therefore, the heavier outside column forces the poisonous sub-soil air up through the floor of your hot air chamber, filling the space with polluted air; this in turn becomes lighter and is forced through the hot air flues into the living rooms to feed the occupants, and we wonder why we are not typical specimens of the genus homo. During the early part of this century, Philadelphians were not satisfied with the cess pool and sewage filth they could take into their bodies through the air. The cess pools and sewers were built with what is called dry walls; they are walls constructed simply of brick, with open interspaces. The object was to permit the percolation of the effluent

through into the surrounding sub-soil. The idea being that mother earth was a great and inexhaustible purifier; this, however, was too complimentary, her power was limited and the sub-soil soon became surcharged with filth and through this polluted ground they deliberately laid wooden conduits for water carriers, which in certain strata of earth soon decayed and became very porous, in fact so much so that disease-effecting and disease-producing micro-organisms would pass through their walls into the stream of water, on its way to the drinking tap in the houses of our ancestors. If this condition of affairs existed at present, we might be even more apprehensive than we are of the threatening cholera epidemic.

Another substitute for the oxygen that our house air frequently contains is, as I have already mentioned, carbon monoxide. This gas is a direct and deadly poison, one per cent. of which in a confined atmosphere, will unite with the hæmoglobin and deprive the red blood corpuscles of their power to carry oxygen to the tissues, in consequence of which, the nerve centres fail to respond to stimulation and death ensues. The usual sources of this gas, which I believe to be one of the great pre-disposing causes of early decay of our faculties, is the combustion of the substances used for producing heat in buildings for the various purposes of man. It is non-odorous and will pass out through cast iron, when sulphurous acid gas, which, when present, acts as a tell tale, will not escape. Hot air furnaces and stoves for the burning of coal are fertile sources of this poison. Yet, our city fathers in Philadelphia were not satisfied with the small volumes of this insidious poison produced and permitted to escape into the air of our buildings from this source, they therefore introduced water gas into our mains. This gas must contain at least thirty-five per cent. of carbon monoxide, and at the same time has a solvent power on a residuary substance that has been deposited in our old pipes, from coal gas which prevented leakage; consequently during the last year our houses have been deluged with this health destroyer. There is no doubt in my mind, but, that much of the so-called diphtheria in Philadelphia last winter, was a tonsillitis

caused by water gas poisoning. Our people, however, because they are furnished with a better illumination by this gas, which is richly charged with carbonaceous material, go on electing to office those who are, through ignorance, poisoning our bodies, and at the same time burdening us with as heavy a tax as the English laid upon our colonial ancestors, by charging for this poisonous gas about three times the cost of its production. Deficiency in oxygen and the excess of carbon dioxide and the additions of carbon mon-oxide and organic matter in the air of buildings occupied by man and the domestic animals, undoubtedly play a most important part in the ætiology of all pathological processes, yet, their injury comes so slowly and continuously that man does not fully realize the presence of the enemy until too late. The people's medical advisers do, however, realize this condition, and also the importance of pure air to maintain health and to overcome pathological processes; therefore it behoves our profession to teach the people, particularly the law makers of our land, the necessity of having this element, with which nature has so bountifully supplied the organic kingdom, kept pure. Each physician should insist upon his patients refusing to endorse any candidate for public office, unless he gives a pledge that he will exert himself to have laws made and enforced to bring about a higher degree of health. It is as important to compel our people to have properly ventilated and lighted houses, as it is to have sanitary plumbing, which latter our laws require. As physicians, we forget the scope of our power, and neglect our moral and professional duties. It is incumbent upon us to instruct our patients how to preserve health, and thereby improve the moral, religious and political standard of this, the greatest nation of modern times.

Ill health is the parent of much that is bad in civilized life, and it lies in our power more than it does in those devoting their lives to the professions of law and theology, to advance the moral condition of our people. There is not a man, woman or child in this great state, that is without a physician. He is thrown into the most intimate relationships with his patient, and by teaching the proper

laws of hygiene, he can greatly reduce murder, suicide, drunkenness and family feuds. If this be so, why are we not doing our duty? The answer must be that sanitary medicine is not attractive; in fact, many of its details are naturally repulsive and not profitable to him, and therefore the physician shuns it in his private capacity, and this is wherein he fails, for it is not as a reformer, a legislator, or a scientist, but as a family physician that his great power for good in this direction lies. It is in this role that the doctor of the present day is at fault; he does exert himself to legislate, to exhort his fellow physicians, but as the familiar family doctor he fails to take advantage of his power to exert a moral influence over his fellow man. The great physician must bridge over the wide gap between science in the abstract and medicine as it should be practiced in every day life. Without a moral influence over his patients, he cannot reflect the full power of his scientific knowledge.

In no other profession is the adviser brought into such intimate relationship with his fellow creatures when they are susceptible to advice, unless it be the spiritual adviser, whose duties too often come when the life in question is about to be closed. At the word of the physician families separate for years, men give up their trades and vocations. Their domiciles are moved to higher elevations, or to the seashore. Therefore, if we have it in our power to bring about such radical changes as these in the habits of our patients, why is it that our homes, factories, mills, vehicles, hospitals, places of amusement, etc., etc., are so poorly supplied with pure air? Again, why is it that our cities in this great state are permitted to be built up so closely? Where are our urban parks, gardens and play grounds, which are necessary to keep up the average standard vitality of this great nation? I say nation, because it is made up of individual men and women, its power being simply the sum total of the force of the individuals, that go to make it up, and the more thickly the inhabitants are settled the lower is the degree of health. It has been said that all things being equal the health of a population is in inverse ratio to its density.

The only way to overcome this rapidly increasing evil of huddling together is by opening to the people, public gardens and open spaces and wide boulevards. A wide avenue is now proposed in Philadelphia, which would not only give the city, as it were, a new link, but it would make a short and attractive walk and drive to the greatest city park in the civilized world. I have heard it spoken of as an ornamental luxury, but I believe it is a crying sanitary necessity, which if once demonstrated to our lay people by its physical opening would in a short time be followed by a request to the authorities for others of a similar nature. Outside of a better sewage system and a mechanical filtration of Schuylkill water, I know of no other more crying need in that great city of our State, than air spaces and vegetation.

The way in which our towns are being closely built up is disgraceful to our city fathers and reflects somewhat upon the medical profession. Too many poorly ventilated public school houses are, at present, being erected on contracted spaces, without any gardens or play grounds, where the brains of the present generation are overworked and the body starved and poisoned for want of pure air and physical exercise. To pass one of our public school houses in Philadelphia at noon and see the pale-faced children playing on the damp brick pavements between two high walls, shutting out the rays of the glorious sun, makes one blush with shame for the ignorance of our people. While to enter many of our school houses during session, soon benumbs one's brain. During the last winter young girls in our Normal school fainted away for the want of oxygen. The remedy for this deplorable condition of things is largely in the power of the medical profession. If each doctor in this community would teach his patients the importance of pure air, there would be such a universal demand that those holding public office would be compelled to grant us better ventilation in public and private buildings, give us wider streets, more small gardens, less water gas, better sewage, cleaner streets, and less smoke and lower buildings, which latter would permit of the sun's rays striking to foundations of the buildings

on at least one side of the streets. The recent structures in the large cities in this country are monuments of ignorance of our people, that our descendants will censure us for in time not far off. Our streets will soon be but caverns such as the half civilized man lived in centuries ago, mere fissures between great walls of stone and bricks, damp, sunless and dirty, a *sine qua non* for disease germs. Less steam from the factories, locomotives and engines should be demanded. These improvements would lead to a decrease in the mortality of youth, crime, drunkenness and immorality, and to a marked raising of our standard of mental power.

To-day it is a crying shame to our intelligent classes to analyze the air in our medical teaching institutions. Only a few years ago Dr. Kerlin made a series of important examinations of the hygienic conditions of the air in the lecture rooms of Medical Hall of the University of Pennsylvania, with the result of showing 17 per cent. of our index of impurities, or in other words, the carbon dioxide raised from four parts in 10,000 to seventeen parts in 10,000. While six parts in 10,000 represents the maximum of impurities in ordinarily well ventilated rooms, seven in 10,000 is detectable by the sense of smell.

In studying the ætiology of disease, we must not permit ourselves to be persuaded that bacteriology has given us *Le not d'énigme*. Micro-organisms undoubtedly have the power, when introduced into the circulation of healthy animals, of producing certain diseases. Yet I feel convinced that in tuberculosis, and many other germ diseases, that they, in a large majority of instances, only change an already unhealthy condition into one definitely and fatally morbid. Normal tissues supplied with pure air, have great power to resist germs taken into the body through either the digestive or respiratory tracts. This conclusion is reached from the fact, that I found guinea pigs and rabbits yielded much more readily to inoculations by tubercle bacilli when confined in cages, kept in the cellar under my city laboratory, than they did when kept in my animal house situate in the country and so arranged as to have a large volume of pure air circulating



through it both day and night. To avoid tuberculosis, we must recognize the predisposed habit of the individual and have him live in pure air, and not breathe a deoxidized atmosphere, or air loaded with fibrous matter or spiculated dust, or air impregnated with the products of combustion of coal, or the escape of water gas, or a high percentage of humidity, or air that has been robbed of the sun's rays. This last is not the least important, it not only prevents dampness, but destroys poisons, such for instance, as the woorara snake poison and bacteria. If such environments are not avoided, a lower and lower vitality will creep on insidiously, inch by inch, until a pathological condition becomes recognizable both to the victim and his medical adviser. At this stage, if not before, a nidus has been formed which is quite susceptible to the action of pathogenic minute life, and should the patient not be removed from the environment that predisposed him to the attack of the germs, his resisting powers will be still further reduced. It may, however, be discovered early enough to not only prevent a greater degree of susceptibility, but by proper hygienic conditions, the tissues in many cases will return to that degree of health not suited to the lives of micro-organisms.

I do not mean to undertake to weigh the exact power of germs to break up the affinity of normal tissues, when brought into contact with them in what we may call the natural way, to differentiate it from an artificial method. I do intend, however, to say that we can maintain by the aid of pure air and proper physical exercise the integrity of animal function to a degree that renders the tissues almost impregnable to the attack of micro-organisms. We must girdle ourselves with an armor of general good health if we wish to resist the attacks of minute life. The prevention of premature death, disabled physical and mental faculties, forms a far more comprehensive question for the physician than does curative medicine, at the same time we must recognize that preventive and curative medicine are inseparable. While we are gathered together in convention, we all advocate hygienic measures, admitting them to be paramount to

the more fruitless task of the so-called curative side of medicine, yet, I fear we are in preventive medicine too much like many of our Sunday christians, who believe in the theory, yet, forget its practical workings by the time the business houses of Monday morning open for trade. The physician of to-day who has been taught and believes in preventive medicine, too often empirically accepts disease as an existing condition and treats it accordingly until alleviated or cured. This stage reached, he considers his work done until called in again, upon his patient becoming ill, probably with the accumulation of the evils of impure air and other unhygienic habits. This may be pecuniarily profitable to the medical man, and might warrant the ignorant to attribute our laches regarding prevention to be entirely toward that selfish end. This, however, would be very unjust. We must account for the customary neglect of hygiene by the fact that both preventive and curative medicine were hidden in darkness for thousands of years, and, therefore, the conservative, cautious and wise physician, with a full realization of his ignorance, only interfered with nature when stimulated to act by the appeals of an acute sufferer, thence the habit. To-day this should not be so, we do not regard disease as a visitation of the Almighty God, inscrutable in character. We sufficiently understand many of the predisposing and exciting causes to guide our fellow man through life free from the heretofore unknown poisons, to a much more satisfactory degree than some of our forefathers, who believed themselves capable of curbing the wrath of God by the administration of their empirical remedies. This good fortune of ours, however, comes to us from the fact that in all ages of medicine our profession has been besprinkled with ambitious minds, who have labored to discover the cause of ill health and methods to prevent disease, and now the time has arrived for us to come to a full realization of what has been demonstrated regarding man's power to prevent disease and adopt as our motto *venienti occurrere morbo*. Hasten to meet the coming disease. Those factors essential for prevention oftentimes prove

essential for cure—which fact is not recognized by many of our practitioners. For instance, we frequently know of a physician who is called in to see a patient; he correctly diagnoses the case as one of typhoid fever, and then simply applies his knowledge of the healing art. Oftentimes with as little success as if he had been administering to a person with symptoms of lead poisoning, who was at the same time continuing the use of water impregnated with the poison. He seldom interests himself to investigate and remove the source of poison, but frequently orders the patient on a milk diet, the very vehicle that first carried the poison. I conceive it, however, to be our duty to at once investigate the water, food and air supplies and thereby cut off all external source of further poisoning.

The healing art and preventive science are a part and parcel of each other. The cure of disease must be imbued with a preventive element. Scurvy certainly demonstrates this assertion to be true, as in the treatment of this pathological condition we see the cure emerges directly and exclusively from the preventive treatment, and I have no doubt that as our knowledge increases, this principle of physiological treatment, as opposed to complicated and disturbing drugs, will be more clearly recognized.

If some move is not accomplished ere long, to establish better hygienic conditions, and our people taught to appreciate that education of the body is almost of equal value to culture of the mind, the bodies of our people will be starved, and the normal brain become morbid. The now great American nation will be forced to take a second place regarding health, ability and morality, while she will rank high in immorality.

It is a sad mistake, to centralize our attention upon the cultivation of the brain as if it were a separate organism, entirely independent of the physical body, and it depends upon our profession to form a public opinion favorable to the supply of pure air and physical exercise, particularly to the poorer classes, and this I exhort you to, as nothing else will maintain the high standard in our future generations that has been handed down to us by our forefathers.

Fellow physicians, upon reform in sanitary matters depends the future of this promising nation. Our Government has its Secretary of State, of the Navy, of War, of Agriculture, of the Treasury, while the richest treasure of all to mankind, health, is absolutely ignored. Why do we not have a Secretary of Health? This is a disgrace to us as a people, and indirectly a reflection upon our profession, for we undoubtedly have it in our power, if we would insist on our patients and their families paying more attention to sanitary matters.

Knowing, as a physician does, how important health is to human greatness and happiness, our efforts cannot be too great to maintain it. The present year is one of more than usual importance with the dire disease, cholera, close to our shores. Yet, with the individual exertion of each physician in this State to maintain cleanliness and to stimulate those trusted with quarantine, we should not only prevent the entrance and spread of this disease, but faced by such an enemy, the legislators would be reminded of the vast importance of a good code of sanitary laws, and vote liberal appropriations for the execution of the same.

The following words of the late Dr. Richardson should be ever kept in mind:

"Cleanliness covers the whole field of sanitary labor. Cleanliness, that is purity of air; cleanliness, that is purity of water; cleanliness, in and around the house; cleanliness of persons; cleanliness of dress; cleanliness of food and feeding; cleanliness in work; cleanliness in habits of the individual man and woman; cleanliness of life and conversation; purity of life, temperance, all these are in man's power."

"How small of all that human hearts endure,  
That part which laws of kings can cause or cure,  
Still to ourselves in every place consigned,  
Our own felicity, we make or find."

The Medico-Chirurgical Hospital has every room occupied and a number of patients waiting for accommodations. Steps are being taken to increase the number of private rooms. It is not two years since the hospital opened with the number of its beds doubled.

# THE NECESSITY FOR THE EARLY RECOGNITION AND TREATMENT OF SUPPURATIVE DISEASES OF THE TYMPANUM, AND THEIR RELATION TO CEREBRAL COMPLICATIONS.<sup>1</sup>

By S. MACCUEN SMITH, M.D.

[Lecturer on Otology and Chief of Aural Clinic, Jefferson Medical College, of Philadelphia; Surgeon in Charge of the Ear and Throat Department of the Germantown Hospital, Philadelphia, etc.]

IN bringing the subject of this paper before you this evening it is with the hope that one of the many urgent subjects of otology may be so clearly presented, in connection with the discussion which follows, as to deeply impress the busy practitioner with the importance of the early recognition and treatment of aural diseases in general.

We think it is an admitted fact that of all human ailments diseases of the ear have been most neglected.

From the early days of medicine to the present time aural diseases have largely fallen into the hands of cunning quacks, who, through their hocus-pocus methods, have mystified the always gullible public. In fact, the science of otology has been reduced almost to the primitive teachings of the dark ages, when it was declared by the expounders of ancient wisdom that urine of the male and female, respectively, would cure ear diseases in the opposite sex, and that inflammatory conditions of the ear might be alleviated by one of their pharmaceutical specialties, composed of "the delicate admixture of the excrement of pigeons and the ashes of horses' dung, to which might be added finely pulverized black pepper."

Judging from the statements of patients, there still exists among some of the profession a belief, which is largely shared by the laity, that something mysterious or magical surrounds the diseases of the ear and their treatment. With this opinion prevalent we cannot express surprise at many of the unfortunate sufferers volunteering the information that they had been advised to "*Let well enough alone*," "*it is bad to meddle with the ears*," "*do not tamper*," "*never heal a running ear or it will go to the brain and kill you*."

It is also of daily occurrence to find that

the syringe has been roughly used to throw a stream of water on an *exposed drumhead*, or that the popular but uncleanly habit has been suggested and followed of dropping greasy and other fungus-generating fluids into the ears.

This evident lack of information is, of course, due to the fact that in former years in many of our medical colleges otology had received only the minimum consideration, while in some institutions this most important branch of medicine had not even been mentioned in their curriculum. So long as students are not required to pass an examination on aural or other diseases, it will be found that their knowledge of the same is almost *nil*.

It is indeed gratifying to be able to note the increasing interest and demand for special instruction on the ear and its diseases. To the recent graduate in medicine a knowledge of this branch now becomes imperative, as many of the State Examining Boards require applicants to pass an examination on otology.

From a medico-legal standpoint the subject is of the utmost importance, for certainly the time is not far distant when it will be regarded as illegal for one to so neglect a suppurative disease of the tympanum (either acute or chronic) that fatal cerebral complications result therefrom. Brain abscess and meningitis, as the result of ear diseases, are in the great majority of cases preventable. It, therefore, becomes the imperative duty of every practitioner of medicine to properly diagnose and treat such cases. This duty is especially important to the physician of general practice, inasmuch as he is usually the first to be consulted, and his direction and care of the patient at that critical time is often of vital importance.

In order to give an idea of the importance of ear diseases in their relation to general medicine and the responsibility and duty of the profession at large to the public, it will be interesting to note that it has been estimated by various authors that from forty-three to seventy-six per cent. of all brain abscesses arise, either directly or indirectly, from suppurative disease of the middle ear. To this I should like to add that the same figures would probably not exaggerate the large number of cases of meningitis and py-

<sup>1</sup>Read before the Philadelphia County Medical Society, April 26, 1893.



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æmia, which, on account of their doubtful etiology, are termed and accepted as "obscure." Barker, as quoted by Keen and White, estimates that not far from two thousand deaths, caused by diseases of the ear, annually occur in Great Britain, with a population of little more than one-half that of the United States.

These are, indeed, impressive figures, and are especially deserving of serious consideration, from the fact that there are annually dying in the United States probably four thousand of her inhabitants from brain abscess, the direct cause of which is some pathological change in the ear. Our belief is that should these cases receive early recognition and care the mortality, at least, would be greatly reduced and the fatal complications in most cases be prevented.

As a rule, an acute inflammation of the tympanum is painful in the extreme; and yet it must not be forgotten that we will at times find a case where the membrana tympani will rupture with the consequent flow of discharge, which will be the first and only symptom to attract the patient's attention. These cases, however, yield promptly to treatment, unless dependent upon some enfeebled condition of the constitution. On account of the symptoms not being urgent they attract but little or no attention, and, therefore, are allowed to form a good foundation for a chronic purulent suppuration with all its possible serious consequences.

An acute suppurative otitis media is usually the result of the acute non-suppurative variety (commonly known as earache) the symptoms of which briefly are, a sense of fullness in the head, accompanied by more or less tinnitus and so-called "neuralgia." In my experience these symptoms precede the real pain several hours, or in some cases it may be several days. The pain, which is very severe, generally occurs at night, and is referred to the ear and along the Eustachian tube. In most cases considerable fever is present, and marked impairment of hearing. As the pus accumulates the bulging outward of the membrana tympani correspondingly increases, and the tension resulting therefrom intensifies the pain almost beyond endurance. It is in this state or stage of the disease that immediate relief is so earnestly de-

manded for the present and future welfare of the unfortunate sufferer.

Should the patient have the good fortune to have the distended drum promptly punctured in order to promote the free escape of pus, and this followed by gentle inflation through the Eustachian tube, together with general antiseptic care and the use of leeches, the hearing will in most instances be quickly recovered, the discharge will cease, and all the functions of the organ will soon be re-established.

If, however, the pus is not promptly evacuated the patient is in imminent danger of one or more of the serious consequences that follow such neglect. Should the drum be so thickened and bound down by adhesions as to enable it to resist the pressure, as is sometimes the case, the pus will then, by one of the several means of communication, produce a septic inflammation of the brain or its coverings, which usually has the result of a prompt fatal issue. Or the pus may communicate with the mastoid antrum, thence to the mastoid cells, thereby subjecting the patient to all the serious, and oftentimes fatal, complications of such a condition.

Fortunately, however, these implications are not of frequent occurrence from acute suppurative otitis media, for, in neglected cases Nature has wisely provided a drum that will usually rupture of its own accord when the pressure from accumulated pus reaches the dangerous point; or, as it occasionally does, the pus finds an exit through the Eustachian tube into the throat. This is particularly the case in children, because the calibre of the tube is proportionately much larger in early life.

Brain and mastoid implications arising from a suppurative inflammation of the ear are in nearly all cases a result of the chronic variety, although I have seen several fatal cases from the acute suppurative form. There is usually a history of chronic discharge, frequently even extending over many years. At times the "running" will cease, and the physician and patient (if he be under treatment) will congratulate themselves on the apparent success of their therapeutics, when quite unexpectedly the patient again applies for relief from a



severe pain in the ear, caused either by exposure to cold or wet, or it may be from some trivial accident, such as a slight blow upon the ear or head.

Any patient suffering from a suppurative otitis media, be it of the continued or recurrent form, is in constant danger (either from exposure to cold or traumatism) of a fatal termination. "Many apparently unaccountable cases of fatal coma are explained in this way; an old cerebral abscess, which has already lasted weeks or months without giving rise to any definite symptoms, suddenly giving way and bursting into the ventricular or subarachnoid space." It is, therefore, a safe and wise rule, as well as duteous teaching, to regard every person with a discharging ear as being in such a condition that serious, or even fatal, complications may arise on the slightest provocation.

Recent bacteriological investigations demonstrate beyond question, that the quantity and especially the quality of the discharge is an all-important factor in considering the prognosis of individual cases. The popular impression is that so long as a discharge is copious and devoid of fetor it is harmless; and of such little moment as to demand treatment only from a point of tidiness or inconvenience. This belief, notwithstanding its almost universal acceptance, is misleading and is calculated to cause in the future, as it has done in the past, much misfortune.

It is entirely true that in a freely "running ear" we have present the best possible condition to prevent brain complications, and yet we must not lose sight of the fact that a decrease in the discharge, and especially if it should stop suddenly, must be viewed with some degree of alarm, inasmuch as this sudden or more gradual decrease in the flow is frequently caused by inspissated masses of mucus and pus collecting behind a wall of dried and hardened epithelium intermixed with pus, and entirely occluding the opening in the ruptured drum, consequently preventing the escape of discharge which continues to form until the accumulation causes much pressure, and the brain or mastoid complications may be the result.

Generally speaking, a discharge of pus without fetor is considered harmless, and,

therefore, in most cases receives little or no notice, unless for cosmetic purposes. Although the number of observations on the pathology of the putrefactive changes within the ear have been limited and confined to the researches of only a few investigators, sufficient information is at present made known from the recent discoveries in micro-biology to establish the fact that non-fetid pus from the ear contains large quantities of pathogenic cocci, and is, therefore, highly infectious and dangerous to life. In fetid pus it is true that cocci are also found, but they are of the diplococci variety, and the bacilli, which are also present, largely predominate.

Barker, who has given this subject much thought and study, writes as follows: "From his inoculations of animals with cultivations and pus emulsions Rohrer came to the conclusion that the various forms of bacilli found in the fetid secretions of the ear were not pathogenic but simply saprophytic, the animals inoculated with the bacilli either in the tympanic cavity, the auricular veins, or the peritoneum, being alive and well at the end of some months, little or no action having taken place locally. But of the pathogenic nature of the cocci there could be no doubt, from his experiments on animals typical septic diseases of various kinds being produced without fail. These observations appear to me to possess a special interest as regards the question of fetor from the ear. It has been commonly taught hitherto that a bad smell from the ear is an important factor in the prognosis of aural inflammations. My own observations, however, for a long time past have led me to question this conclusion very seriously, and to hold and teach that some of the most dangerous sequelæ of otitis media may be met with where the secretions from the tympanum are either nearly or quite odorless."

"If this be true, and I fully believe it to be so, the explanation is found in Rohrer's observations regarding the pathological cocci found alone in the non-fetid discharges, and the preponderance of merely saprophytic bacilli in the fetid. We must not, therefore, think the less seriously of a discharge from the ear because it is odorless, but must endeavor to

get rid of its exciting cause just as strenuously as if it were most offensive. This is only what we might expect from an experience of ordinary suppurating wounded surfaces in other parts, which in many cases give rise to serious or fatal septic complications without giving off any fetor."

Caries and necrosis are a frequent and serious complication of suppurative otitis, and are produced by ulceration of the inflamed mucous membrane of the tympanum, by extending to the deeper layers of that membrane (which act as the periosteum on the inside of the osseous cavities) and finally attacking the bone itself.

Politzer describes the process as "an infiltration of round cells into and around the fibrous tissue which penetrates the substance of the bone as offshoots from the mucous membrane. These round cells may undergo three transformations; they may break up and be absorbed, they may be converted into connective tissue in which depositions of lime may take place, and we then have a thickening of the bone, or they may, by degeneration and erosion, produce an ulcerative osteitis. This ulceration may be due to constitutional taint, or to retention and decomposition of secretion, or to the catarrhal ulceration and wasting of the mucous membrane."

As the carotid canal (through which passes the carotid artery) forms an anterior wall of the tympanic cavity, and the jugular fossa (in which lies the bulb of the jugular vein) constitutes the floor of the tympanum, it will be readily seen why dangerous and even fatal hemorrhage may occur as the result of caries and necrosis of the middle ear. The bony walls of the tympanum are always thin, and in some cases the roof is entirely absent. The middle and back part of the temporo-sphenoidal lobe and the outer and front part of the lateral lobe of the cerebellum are in direct contact with the middle ear. Knowing this intimate relation of the tympanic cavity to the brain to exist, it does seem surprising that many more fatal results from inflammatory diseases of the temporal bone are not recorded.

As the skin of the external auditory canal (being somewhat modified) is continuous with and forms the outer layer

of the membrana tympani, suppurative otitis media may be set up from without as well as by infectious matter reaching the tympanum through the Eustachian tube, the mucous membrane of which is continuous with that of the throat and forms the inner layer of the drum. And, as many of the mastoid cells lie below the level of their opening into the middle ear, and the floor of the tympanum is in part below the orifice of the Eustachian tube, it will be seen how a suppurative disease of the tympanic cavity, or even the mastoid cells, may continue in a chronic state for months or years.

In suppurative otitis media brain abscess may be induced by direct continuity of structure, or the infectious matter may be communicated to the dura mater, causing subcranial abscess or diffuse meningitis, or to the bloodvessels in the diploe giving rise to osteo-phlebitis, thrombosis of the lateral sinus, or pyæmia. Or, as is the case in suppurative otitis externa, likewise in neglected otitis media, the pyogenic germs may find their way between the opening formed by the non-union of the vaginal and mastoid processes, thus producing a superficial mastoid abscess.

Through carious involvement of the malleus and incus there is frequently a direct communication between the tympanum and the mastoid antrum and cells, this being the usual way in which pus invades these cavities and forms a true or deep mastoid abscess.

There are many other routes along which the infection may travel; it may extend through the hiatus fallopii or the aqueductus vestibuli, or down the internal auditory meatus or it may extend along some of the numerous small veins which run between the internal and middle ear, on the one hand, and the dura and pia mater on the other.

I will now briefly relate one interesting case of mastoid disease following an acute suppurative otitis media.

On March 26th, 1892, I was called to see Mrs. L. B. and found she had been suffering from a severe pain in her left ear and head for two weeks. On inspection nothing could be seen that would suggest a forming abscess of the middle ear, and as the pain in the head was so general it quite deceived the attending

physician. On examination through the meatus we found a greatly inflamed drum and bulging of Shrapnell's membrane. We immediately opened the drum, which allowed a free escape of pus and greatly relieved the patient's pain. This was followed by leeches in front and blisters behind the ear; after which hot poultices were applied to promote suppuration. From this line of treatment entire relief was obtained for five weeks (but the ear continued to discharge), when pain was complained of over the mastoid; in fact, it involved the entire left side of the head.

The usual active measures were at once adopted to relieve pain, but the brief cessation of suffering was only while under the influence of drugs. (It is well to state that neither the mastoid nor any part of the head showed any evidence of either redness or swelling.) Three weeks later she expressed her willingness to submit to an operation, and, with the kind assistance of Dr. J. M. Barton, I opened the mastoid cells, evacuated the pus, and found, by using the syringe, that the opening in the mastoid communicated with the external auditory canal. This established perfect drainage, which relieved the patient of all pain and discharge, but the hearing was found to be destroyed.

In August we removed the drum and ossicles, which resulted in the almost immediate restoration of her hearing, which remains normal at this writing.

As all inflammatory conditions and abscesses of the brain are most serious, and especially so when dependent upon diseases of the temporal bone, it, therefore, becomes our imperative duty to make every effort to prevent these unfortunate complications, rather than to hope for their relief after having once developed.

It is not the object of this paper to enter into the subject of treatment from a general surgical point of view, but simply to offer such suggestions as are thought to be in a measure preventive, for it must now be admitted that many of the serious complications arising from diseases of the ear have much to commend the probability of their being preventable. As already shown, the majority of brain and mastoid diseases are due

to a suppurative disease of the typanum, and are usually the result of the chronic form of discharge.

Most cases when applying for treatment give the history of a "running ear" extending over months or years, and that it has resisted treatment in the hands of many competent physicians. In cases of chronic discharge from the ear that do not yield to due and proper care it is now our rule to advise the removal of the drum and one or more ossicles.

By this surgical procedure we establish a free drainage and make an opening into the typanum sufficiently large to admit of the site of the disease being properly treated by antiseptic washes and applications, and, if this interference be established before brain or mastoid complications have set in, these developments will almost surely have been prevented; besides the discharge in nearly all cases will cease, and the hearing in the majority of patients greatly improve, while in others it becomes quite normal.

Or, if you have a case presenting symptoms of cerebral irritation or abscess where there is a chronic "running ear," and it does not yield promptly to the above measures in conjunction with leeches to the mastoid, etc., it may be due to pus confined in the mastoid antrum, and no time should be lost in making an incision over the mastoid and trephining the same half an inch behind and above the centre of the external meatus. Within the past year I have seen five cases relieved by this method of treatment. In suspected mastoid disease an incision down to the bone is often delayed too long, and, perhaps, is never done too soon.

The seventy-sixth annual report of the Friends' Asylum for the Insane, shows that 144 patients were treated during the past year. The limited accommodations interfere somewhat with the reception of recent cases, as the Asylum is at all times full. Some enlargement is now being made, in the shape of detached wards for some classes of patients. The superintendent refers to the need of a sea-shore branch, for the hot season. A gymnasium and employment building are commendable features serving to vary the ennui of confinement.



## Annotations.

### HOMŒOPATHY.

JOHN B. ROBERTS has republished in pamphlet form, a paper read by him at the county medical society, entitled "*Points of Similarity between us and Homœopathic Physicians.*" His object is to show that the points of diversity are small, and that they grow less, as scientific education improves. It is questionable if there now exists enough diversity as warrants the separation into schools; it will be still less with each succeeding year. The Old and New School Presbyterians clasped hands over a wider gulf, recognizing the individual rights of the human soul, and covering the differences with the broad mantle of Christian charity.

With Dr. Roberts' evident desire to bring about the same action in medical organizations, we fully sympathize, and regret that we cannot accept as a step in that direction the new law, which perpetuates sectarian medicine, and forces upon the medical profession a sectarian denomination. The greatest triumph ever won by the Homœopaths, is that which legalizes the term "Allopathic;" one devised by them as a false statement of our therapeutic faith, one that has been steadily repudiated by us on every occasion, but which is now fastened upon us by the Pennsylvania Legislature.

We sincerely trust that the State Society and the nominees to this Examiner's Board will decline to act under this false and injurious appellation.

### HARVARD MEDICAL SCHOOL.

THE fourth bulletin of the Harvard Medical School Association contains several interesting papers on matters connected with the college. Bowditch describes the exhibit of the school at Chicago; Richardson speaks of the obstetrical department; Councilman of the pathological; Cheever of the professional horizon, etc., etc.

Mason describes scarlatina and diphtheria as seen at the Boston City Hospital. He retains the term "scarlatinal diphtheria," as he says that the Klebs-Loeffler bacillus is present in a certain number of cases. This does not appear

to be a sufficient reason; for, if the bacillus is not present, the case is not diphtheritic; and the false pathology of the term may lead to misdirected therapeutics.

In the treatment of diphtheria, his indications are: support, local germicides, and the elimination of tox-albumen, which remains long after the membrane has disappeared. Food, alcohol, iron and oxygen, fulfil imperfectly the first indication. Peroxide of hydrogen is the best agent to remove the local exudate. In 50-volume solution it is safe and effectual in clearing away membranes and odor. Frequent spraying with the 10-volume solution also keeps the surfaces clean, checks glandular swelling and sepsis, and prevents the spread of the exudative process. Cocaine mitigates the pain of all local applications. Corrosive sublimate may be applied safely, if not too frequently, after cleansing with peroxide, to surfaces covered by exudation. In nasal diphtheria the author has evidently failed to appreciate the value of chromic acid. For parietic affections, strychnine is the best remedy. Elimination is to be aided by mild evacuants; but no evidence is adduced in favor of these agents, of very questionable utility.

### CRUELTY TO ANIMALS.

THE various Humane Societies are up in arms to prevent the proposed race from Nebraska to the World's Fair. Over 700 miles are to be covered, by 300 cowboys, each to be allowed two horses for the entire race. In view of the shocking results of the race between Vienna and Berlin, we trust that means will be found to prevent this useless exhibition of cruelty and destruction of valuable horses. The endurance of horse and man has been fully tested on numberless occasions, and methods of gambling are assuredly not wanting, without devising new ones of such objectionable character.

Dr. L. Webster Fox has been elected Professor of Ophthalmology in the Medico-Chirurgical College of Philadelphia. Dr. Fox is ophthalmologist to a number of city institutions and has won a high reputation for skill in his specialty. As clinician and teacher, his selection is the best that could have been made.

# The Times and Register.

A Weekly Journal of Medicine and Surgery.

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## NON-ALCOHOLIC MEDICATION.

IN the current number of *The Asclepiad*, Richardson gives an account of his service as physician to the London Temperance Hospital. Out of two hundred cases treated, twenty-nine died. We will not attempt an analysis of these results, as such statistics are valueless without the addition of the personal equation; and we can readily believe that B. W. Richardson could obtain results with or without alcohol that the ordinary practitioner would not readily parallel.

In acute respiratory affections he gave carbonate and acetate of ammonia in small and frequent doses; the patient being "well and carefully fed." Impending collapse was averted by the free use of ammonia bicarbonate in coffee. After the "crisis," he gave little medicine, trusting to careful feeding. For tuberculosis, he employed inhalations of ozonized oxygen, made by passing the gas through ozonic or iodized ether. The inhalations were given twice daily, for twenty to thirty minutes at a time. One case left the hospital convalescent. The second suffered from pericarditis, but

finally left for a convalescent home. The third case ran the usual course to the fatal ending. The fourth, an advanced case, obtained much relief, but not a permanent recovery.

Four cases of typhoid fever were treated by the long-continued baths of Dr. Barr, and one by peroxide of hydrogen in chloroform water. One to two drachms of peroxide, in an ounce of the chloroform water, diluted, were given every three hours. In two of the bath cases the same drugs were given. In all three the effects were similar to those noted during the sulpho-carbolate treatment; the tongue became moist, the fever subsided, the mind cleared, tympanites passed away, and good sleep ensued. All five recovered.

That alcohol is unnecessary in cases treated by intestinal antiseptics, has been our own observation repeatedly recorded. That it is given far more frequently than needed, must be the opinion of every physician who practices long enough to clear the drugging region and rise to an appreciation of the physiological and pathological processes. And while one must avoid the abstinence bigotry, and stand ready to administer alcohol whenever the emergency arises that demands it, such emergencies will rarely appear when the case is managed from the first by the hand of a master.

*Changes in the Medical Corps of the U. S. Navy for the week ending May 20, 1893:* P. A. Surgeon E. H. Marsteller, detached from Naval Academy and to the practice ship Constellation; A. Surgeon S. H. Griffiths, detached from practice ship Constellation and granted four months' leave; Assistant Surgeon S. G. Evans, detached from the U. S. S. Monongahela and granted two months' leave; Assistant Surgeon Henry La Motte, ordered to the practice ship Constellation; Medical Directors D. Bloodgood and H. M. Wells, ordered as delegates to the American Medical Association at Milwaukee, Wis.

## Bureau of Information.

*Questions on all subjects relating to medicine will be received, assigned to the members of our staff best capable of advising in each case, and answered by mail.*

*When desired, the letters will be printed in the next issue of the Journal, and advice from our readers requested. The privileges of this Bureau are necessarily limited to our subscribers. Address all queries to*

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### SYPHILITIC DISEASE OF THE EAR.

I HAVE a case I would like to cure, and come to you for advice. A man, aged 27 years, married for some years, a mill worker—heater. He has been treated for four years, for a buzzing noise in his left ear, and itching of the meatus. He had also been under treatment for two years for a violent headache, which I cured by a few powders of acetanilid and soda bicarb. He always has been healthy and has no history of transmitted disease. He had measles when quite young. His ear never runs, but on shaking his head it feels as if something loose were jolting around in it or as if water were shaking. I treated and cured his eight months old baby for a specific skin disease, with hydrarg. ung. It healed like magic. His wife had two abortions before the birth of the last babe. I can find no history of specific trouble in him; but could not those symptoms be produced by syphilis? The pharynx, tympanic membrane, etc., appear to be normal.

I have him on the protoxide, one-third grain, and expect to increase it up to the limit of tolerance, then keep it at that. As a placebo I put a few drops of borated glycerine in his ear once a week. I also have him wash out the ear with as warm water as he can bear, for fifteen minutes each morning.

[If there is no foreign body in the ear, the diagnosis of syphilitic disease appears most probable; and the treatment should be continued. A few doses of jaborandi, say, a drachm of the fluid extract at bedtime, would probably assist.—W. F. W.]

Governor Pattison has signed the Medical Examiner's Bill.

## The Medical Digest.

### FRENCH NOTES.

TRANSLATED BY E. W. BING, M. D.,  
CHESTER, PA.

**ACQUIRED SYPHILIS DURING CHILDHOOD** (Clinical lecture by Professor Fournier.)—Gentlemen: I now present a woman, with three chancres of the breast. She was infected by her child who has an indurated chancre of the lip. The child was infected by its aunt, who attended to it and who constantly kissed it; this woman was syphilitic and had labial mucous patches. This history is quite common. Dr Furlard, also recently showed a child with chancre of the lip, produced in the same way. Here are then, two cases of syphilis acquired in childhood. When in a child symptoms of tertiary syphilis are seen, the question is, are they due to hereditary causes, or to acquired disease. One thinks at first of heredity; as to acquired syphilis, one is apt to overlook it, or to eliminate it as impossible. "It is so rare" we say. But, it is not so rare as one would wish. If we peruse the special publications, we can find cases by the hundred. What is then the source of acquired syphilis of infancy? Two formerly admitted origins must be eliminated.

1. *Acquired syphilis is never derived from contagion in labor.*—We mean by this the contamination of the child, (by an infected mother), at the moment of accouchement. Suppose the mother attacked by vulvar mucous patches, the child being for some hours in contact with the patches, would it not be likely to be contaminated, just as the finger of the accoucheur might be? Reasons have been given for the impossibility of this occurrence, based on freedom from abrasions; on the protection afforded by the sebaceous coating of the skin, and the natural "deterision" given the child by the escape of the waters, etc. But there is a much better reason for this impossibility of contagion *at the moment of birth*, it is because the child is syphilitic already and has nothing to fear from a syphilitic mother.

2. *Acquired syphilis never arises from maternal syphilis previous to labor.*—We



mean by this, that in the case of a woman, syphilitic before labor, who bears a healthy child (apparently), can this child be infected later on, by its mother? No, and for the same reason, that the child is already in the grasp of the disease.

Let us come to the positive causes of contagion. They may be ranged under four heads.

- |                       |                     |
|-----------------------|---------------------|
| 1. Nursing,           | } Causes special to |
| 2. Surroundings.      |                     |
| 3. Outrage,           | } Common            |
| 4. Medical contagion. |                     |

1. *Nursing*.—Many children are infected by nurses. In the first category, the nurse is previously syphilitic and communicates the disease to the child, and is to blame. In the second, the nurse may be, at once the victim and culpable. She may receive syphilis from one child and transmit it to others, and this is one of the most certain and common means for the spread of the disease.

2. *Its bringing up, or surroundings*.—The child may contract syphilis from its family, nurses, or visitors, in various ways. (a) It frequently derives it from the mother, who at her confinement may take syphilis and communicate it by kissing. (b) From the father, the chances are less, as he does not have so much to do with the child. (c) The nurse often infects by kissing, or by allowing the child to put its fingers in her mouth, and afterward transfer them to its own. (d) By contact with other children. Buccal syphilis, either hereditary or acquired, is frequent in children; and articles transferred from mouth to mouth, form a frequent cause of contagion. (e) Strangers usually transmit it to the child by kissing. (f) What may be called "domestic" contagion is frequently seen, from the common use of utensils and other articles, such as sponges, towels, cups, soiled linen, etc.

3. *Outrage*.—Attempts of this character on children, followed by syphilis are no doubt rare, but still it is easy to find examples in children, varying from four to ten years.

4. *Medical Contagion*.—(a) From the hands of the physician or by surgical instruments. Some time since, an epidemic of contamination by catheterism of the eustachian tube was noted, caused by an infected instrument. (b) By circumcision

as practiced according to the Jewish rite. (c) Syphilis has been communicated by a midwife, who, after the separation of the cord, dressed the umbilicus with linen wetted with her saliva. Another transmitted the disease to fourteen women, by sucking their nipples, with the object of drawing them out. Another infected, directly and indirectly, one hundred persons, from a chancre of the finger. (d) Vaccination is also sometimes a cause of wide-spread infection. In conclusion, I hope to have pointed out that syphilis acquired in childhood is very far from being a rarity.—Fournier, *La France Medical*.

TREATMENT OF CONSTIPATION BY LARGE INJECTIONS OF OIL.—This method is much used by Dr. Fliener, who mentions two forms of constipation, atonic and spasmodic. The first is a consequence of weakness of intestinal peristalsis. In young subjects, it may be due to sedentary habits, but is especially seen in aged persons and is due to atony of the muscular coat. Excessive distension of certain parts of the digestive tube, by gas and fecal matter, may even produce paralysis. Constipation may be complicated during its course, by catarrhal inflammation of the colon.

In atonic constipation, the abdomen is swollen either partially, or in its whole extent. The stools are harder, dryer and lumpy. To provoke alvine evacuations in this form of constipation, is generally easy. Fruits, honey, bran-bread, etc., are often sufficient; but sometimes a mild laxative is also required. Cold water injections, cold sitz-baths, massage or faradization of the abdomen, are also useful.

Quite otherwise is constipation depending on spasm, and having the colon as a point of departure; this is seen in neuropathics, neurasthenics, hypochondriacs, and the subjects of uterine disease. This is due to spasmodic contraction of parts of the intestinal tube retaining the fecal matter. Sometimes even there is contraction of anal sphincter; a characteristic of this form is the shape of the fecal matter, which is in the form either of hard spherical masses, or more or less long and small cylinders. Spasmodic constipation may be also complicated by catarrh of the tube, by colitis,

which is "irritable" and may simulate pseudo membranous colitis. There is also a mixed form of constipation, in which, while the lower part of the bowel is in a state of spasmodic contraction, the upper part is distended with gas, and in a condition of atony. Therapeutically the distinction between the varieties is of great importance. The means successful in atonic constipation are useless and sometimes harmful to the spasmodic form. Narcotics sometimes relieve the latter form, but frequently fail. A very efficacious treatment consists in the use of injections of oil, which exert both a calming influence and a purgative action on the intestine. The method of administration is as usual, the patient being in the ordinary position with the hips elevated. The injection is made slowly, consuming fifteen or twenty minutes and using from eight to ten ounces of oil, since the intestine exerts an aspirating force, the canula need not be introduced very far. Immediately after the injection, the patient does not experience any desire to go to stool, but in a short time he feels the oil "working" and finds it necessary to expel gas. There is no colic, *provided the oil be pure and sound*. After the lapse of some hours, a more less copious passage occurs, in which only about one-half of the oil administered is contained, the remainder stays in the bowel; its elimination is slow and is often only accomplished at the end of ten to fifteen days. An injection is given every day (generally for three or four) until the bowel is empty. Should the first injection not move the bowels, a simple water injection should follow it. Only olive or salad oil, free from rancidity should be used. These injections are also useful in the treatment of membranous colitis, typhilitis, proctitis and certain combined intestinal and stomach disorders. —*Rev. de Therap. Med. et Chir.*

**DURATION OF THE VIRULENCE OF TUBERCULAR SPUTUM.**—DUCOR saw an endemic of tuberculosis in a family who occupied a lodging, used two years before by two phthisical patients. Koch's bacilli were found on the wall paper, and guinea pigs inoculated with them died of tuberculosis. Disinfection should be thoroughly carried out, in houses where

cases of tuberculosis have been cared for, even after a considerable lapse of time.—*Progres Medical.*

**FURTHER THERAPEUTIC OBSERVATIONS OF EUROPHEN**, (by Dr. P. J. Eichhoff, Physician in Chief of the Dermatological Division of the City Hospital of Elberfeld).—In the following I will briefly relate my experience with europhen since the publication of my first article in the *Therapeutische Monatssheften*, July, 1891.

In the first place I would emphasize that I have discontinued the subcutaneous employment of europhen in syphilis, because the positive advantages in this form of application were not commensurate with the consequent disturbances. Moreover, in the first cases treated by the subcutaneous method I employed europhen at the same time externally, as for example in cases of broad condylomata, and a considerable, if not the greatest, share of the favorable results must be attributed to the external application of the remedy. Aside from this I have observed recurrences in a few of the cases of syphilis treated by the subcutaneous injection of europhen, which appeared earlier than in cases in which the other customary methods of specific treatment were employed.

While abstaining from the subcutaneous use of europhen my results from its local application have been exceedingly satisfactory. I would sound a note of warning against the employment of the remedy together with or immediately after application of a sublimate solution, as marked irritation is apt to result, probably in consequence of a combination of iodine and mercury, which affects the skin in much the same manner as calomel when applied to the eyes in cases where iodide of potassium is being administered internally produces marked symptoms of reaction.

As regards the cases observed since my last report, I have to record first thirty-one cases of *ulcus molle* treated with europhen, in which the remedy acted very satisfactorily. Most of the ulcers were of ordinary size, and in the usual locations, the glans and the prepuce. The average duration of the healing period in the case of sores of about

the size of a lentil was fourteen days. In all these cases the euophen powder was lightly dusted on the surface of the ulcer after previous washing and cleansing, and then a layer of cotton was applied. Complications with buboes never occurred in these cases, nor were symptoms of irritation produced by the remedy if it was applied in moderate quantities, only sufficient to cover the ulcerated surface.

The ordinary course of the healing process is that the bacon-like base of the chancroids assumes a cleaner appearance during the first few days, the margins are sharply defined by a fresh red scar, the secretions of the sore become scantier and the surfaces are soon covered with epidermis starting from the margins.

In only one form of chancroid, the so-called *ulcus molle elevatum*, where the bacon-like, discolored granulations shoot up profusely from the base of the ulcer and overtop the margins, was the healing process less rapid in a few of the cases treated with euophen, although an immediate arrest in the further development of the affection occurred. It is evident that in these cases euophen was not powerful enough to check the granulations, but after several applications of nitrate of silver it always promptly effected healing.

Of these thirty-one cases, only a small number was treated in my division of the hospital; by far the largest part occurred in private practice and were therefore under ambulant treatment. All the patients were satisfied with the remedy on the score of convenience, and seemed pleased that they had avoided the use of malodorous iodoform.

I also treated eight cases of leg ulcers with euophen, and here also the remedy acted very favorably, and, at the very least gave as good results as from the use of iodoform. The manner of application of euophen, in these cases was as follows: After cleansing the ulcers with five per cent. carbolic acid solution the powder was sprinkled in a thin layer over the entire base of the ulcer, the cavity tamponed with plain gauze and a fairly bandage applied. In all cases the secretion became soon scantier and assumed a healthier character, the granulations appeared healthier and the ulcers rapidly diminished in size even when they were extensive and had callous margins.

This dressing was every day or every two days according to the abundance of the secretion. In these cases, as well as in *ulcus molle*, I regard it most desirable to use the euophen in form of a powder, because it is always necessary to absorb the acrid discharges with gauze or cotton.

In five cases of *scrofuloderma* and in seven cases of *lupus exulcerans* cicatrization occurred under the use of euophen, which was applied in form of the pure powder or in one-third per cent. ointment. Whether, however, a complete cure of the tuberculous process is obtained by inducing cicatrization I will not maintain. I expect successful results from euophen in such cases only by reason of its cicatrizant properties when tuberculous ulcers are present, but not in cases where the surface of the *lupus* or *scrofulous* lesions is covered with more or less intact epidermis.

Excellent curative effects are also obtained from euophen in the treatment of the erosions and ulcerations of the *portio vaginalis uteri* which occur so frequently in connection with gonorrhoea in females. The powder is applied twice daily or a cotton tampon charged with euophen is introduced, the tampon having a favorable action upon the gonorrhoea process by absorbing the secretions.

In conclusion I would remark that I employ euophen with much success as a local and external medicament in the treatment of the secondary syphilitic, so called broad condylomata, but as already stated, have dispensed entirely with its subcutaneous application in cases of syphilis, because it gives off too little iodine.

On the whole, I cannot urge too strongly the use of euophen in the above described cases as a substitute for iodoform, the more so as it has, aside from its equally rapid curative action, two important advantages over the latter—its freedom from odor and toxic effects.

#### SALOCOLL (PHENOCOLL SALICYLATE).

—The introduction of another salicylic acid compound into medicine suggests a train of thought as to the important position which the acid has taken in *materia medica* not only from its own virtues *per se* but from the valuable therapeutical



combinations which it forms with a number of basic substances.

A characteristic property of the soluble salts of salicylic acid is the readiness with which they are absorbed by the digestive organs, the mucous membrane and even the skin. This promptness of absorption is not always advantageous, since it may be accompanied by too great intensity of action, and hence the less soluble salicylates are commonly observed to be freer from bye-effects than those salts more readily taken up by aqueous liquids.

It is especially noteworthy as one of the chief factors in the high position which salicylic acid has attained, that it and its salts are comparatively harmless even when given in comparatively large doses and for lengthened periods.

But the essential virtues of salicylic acid which it imparts in a more or less modified form into its combination are (1) an antifebrile action and (2) an antiseptic property. The reduction of the febrile temperature is usually but not invariably accompanied by perspiration. The fall of temperature is not due to this phenomenon, however, but chiefly to the influence of the substances upon the nervous centres which regulate the production of heat in the body.

Salocoll or phenocoll salicylate combines the action of salicylic acid and of phenocoll, which in the form of hydrochloride has done such good service as an antineuralgic, antirheumatic, and antipyretic. The new salt has a sweetish taste and is not so abundantly soluble as the hydrochloride—a difference which probably explains the remarkable freedom of the combination from bye-effects. Further it may be noted that physiological research has indicated the desirability of employing salicylates of preparations of the same class as phenocoll, because such salts are found to be free from any bye-effects which may be produced by the pure base.

Practical experiment has shown that neither gastric disturbances, alterations of blood pressure, nor cyanosis follow the administration of salocoll. It has shown itself a reliable and safe antipyretic, antineuralgic and antirheumatic, having beneficial effects in many cases, where other remedies proved of no use. In in-

fluenza its beneficial effects were especially marked. The dose for adults is 15 to 30 grains in powder, several times a day; in appropriate sub-divisions of this quantity it can also be given to children with safety.—Extract from *The London Therapist*, March 15, 1893.

**HEMATURIA.**—There are cases of hematuria without evident lesion or any known etiology, which Gull termed "renal epistaxis," saying there was no reason why one should not occasionally bleed from the renal nureous membrane as well as from that of his nose. Incision of the kidney may seem uncalled for in such cases, but the results in two cases mentioned justify the procedure. Tiffany urges incision of the kidney for neuralgia.—Osler, *Johns Hopk. Bulletin*.

**COLD BATHS AND LEUCOCYTES.**—Osler confirms Winternitz's statement as to the effect of cold baths, increasing the number of leucocytes in the blood. The effect is probably local, and due to an accumulation of the leucocytes in the peripheral vessels. The increase was noted in normal blood, as well as that of rheumatic and typhoid cases; and was most marked when chill and shivering followed.—*Johns Hopkins Bulletin*.

**GREEN STOOLS.**—The rationale of green stools has been the subject of much controversy. They occur in most varieties of infantile diarrhoea at some time or other, and the color varies from a sage-green to a bright grass green. Though it has been said to be due to pigmentation derived from a special micro-organism, it is now generally known to be dependent on the presence of biliverdin. It is sometimes asserted that it is due to acid fermentation in the bowel; but, apart from the fact that green stools are not always acid fermentation occurs normally in the bowels of an infant, and yet green stools are exceptional. Pfeiffer attributes it to morbid alkalinity.—Carter, *Provincial Med. Jour.*

**DYSENTERY.**—Crombie (*Indian Med. Gazette*) reported a small series of dysentery cases treated by ipecacuanha deprived of its emetine. His conclusions were that this substance possessed advantages

over ordinary ipecacuanha, in that the former did not usually cause nausea and vomiting in an equal degree. But neither form showed any special advantage over the "triple powders," of Dover's, bismuth and sodium bicarbonate, that caused no distress whatever.

**STRYCHNINE IN ALCOHOLISM.**—Strizover states that a traveling salesman had been in the habit of taking twelve to fifteen drinks of vodka daily, for 18 years. Strychnine, gr.  $\frac{1}{30}$ , thrice daily was given by the mouth, and the same dose once daily by hypodermic. This was continued for three months; and the craving of drink completely removed.

### News and Miscellany.

New York City's dispensaries treat 452,422 persons annually free of charge.

Dr. George Homan succeeds Ohmann-Dumesnil as editor of the *Weekly Medical Review*.

Brodnax recommends the squatting position in labor as facilitating delivery. —*The Clinique*.

The P. and S. College, of New York, is said to have decided on a four years' course. Verily, the world has moved, since Bellevue was brought low in the effort to establish a three years' course.

The loofah is utilized in England for the manufacture of socks. The product is highly recommended by an English journal, on the grounds that the socks supply a non-conducting air-space, prevent blistering, and are washable! From this we infer that the custom of washing socks has not become prevalent in the mother country.

The Midnight Mission, for the rescue of fallen women, solicits contributions to assist in the noble and quiet work in which it is daily engaged; at the Mission House, 919 Locust Street, and at the Country Home, East Walnut Lane and Hancock Street, Germantown. To either address, donations of house-keeping materials may be forwarded, or will be called for by the Mission upon receipt of

notice. Donations of cash may be sent to the Treasurer, Adam A. Stull, 813 Chestnut Street, Philadelphia. This institution has for twenty-five years been doing a noble work, and deserves the assistance of those who have funds for charity.

The forty-fourth annual report of St. Joseph's Hospital states that 1556 cases were treated in the wards during the year; while 4507 persons attended the outdoor clinics, and 2920 were furnished free meals.

We have placed patients in St. Joseph's, and desire to express our obligations for the kindness with which they were treated. The diet was excellent, and every care taken to meet the wants of individual cases; the rooms bright and the associations cheerful, while if greater devotion and skill in nursing can be shown than that displayed by the Sisters, the writer has never known of an instance. This, also, fully appreciating the good work of the modern trained nurse.

The *Indiana Medical Journal* thus vigorously defends itself against the charge of somnolency, aimed at a small section of Chicago's medical men:

"Hoosiers indeed! We read every issue of Dr. Waugh's and Dr. Shoemaker's journals, we know them both, and have dined at the former's table. We have borrowed 'soup' from both in times of journalistic need (always with due credit). Every live doctor in Indiana takes the *Indiana Medical Journal*; therefore every live Indiana doctor knows Drs. W. and S. and their journals. We repudiate the identification of Hoosier and Windy-City ignorance. Pass the slander on to the next state west."

We stand corrected. We should have said "Suckers" instead of "Hoosiers;" but were under the impression that Chicago had annexed Indiana, and that the two terms were now synonymous. However, we'll take it all back, except as to Cesna; and hope to meet our friends of both states in the White City next month, and demonstrate to them that at least one resident of Philadelphia can remain awake for several hours at a stretch, without the supervision of neurasthenia.

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